

REMARKS

Claims 1-14 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-8 and 10-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,785,801 (Benjamin). This rejection is respectfully traversed.

The main difference between Benjamin and the present invention is that the present invention uses totally different starting materials. Benjamin uses metal carbide powders such as TiC, TaC and WC as starting materials, whereas the present invention uses elemental powders such as Ti, Mo, C and Ni as starting materials. In the present invention, complex metal carbide such as (Ti,Mo)C forms by the reaction among elemental powders during high-energy ball milling. Because the present invention starts with elemental powders, not metal carbide powders, the final product shows quite unique microstructure of ultrafine and homogeneous solid-solution carbide grains without the core-rim structure, which is not observed in TiC-based cermets fabricated through conventional process. If the present invention did not start with elemental powders, it would not obtain such unique microstructures in cermets.

Claims 9, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Benjamin in view of U.S. Pat. No. 5,322,666 (Watwe). This rejection is respectfully traversed.

Although Watwe and the present invention both use Ar atmosphere, in common, to prevent excessive oxidation during milling, the composition of the treated materials are

Application No. 10/681009
Amendment dated July 21, 2006
Reply to Office Action of March 21, 2006

Docket No.: 9242-000036/US

quite different. Watwe used Ti-based powder including a small amount of Al, Sn and oxide, whereas the present invention uses Ti, C, transition metal and Ni or Co for ball milling. On consequence, Watwe obtains Ti-based metallic materials, whereas the present invention obtains materials including complex metal carbide such as (Ti,Mo)C.

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Dated: July 21, 2006

Respectfully submitted,

By 

Gregory A. Stebbs
Registration No.: 28,764
HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1214
Attorney for Applicant